

# Claims (No multiple dependency.)

What is claimed is:

1. A proximity sensor mountable adjacent to an aperture of a metallic motor vehicle for determining the presence of an object in the path of or proximate to a closure panel that moves between a fully open position and a closed position, the sensor comprising:

first and second electrodes encased in a non-conductive casing mountable on the vehicle, the two electrodes defining a capacitance CE1/2 therebetween;

a reference capacitor (C1);

a first switch for selectively connecting the first electrode to the reference capacitor or to chassis ground;

a second switch for selectively connecting the second electrode to a first voltage reference source ( $V_{ref}$ ) or to chassis ground;

a controller for controlling the first and second switches in order to periodically charge the capacitance CE1/2 and transfer the charge stored thereon to the reference capacitor.

2. A proximity sensor according to claim 1, wherein the controller transfers charge from the capacitance CE1/2 to the reference capacitor for a fixed number of periods for each charge and discharge cycle of the reference capacitor.

3. A proximity sensor according to claim 2, wherein the controller measures the voltage level of the reference capacitor.

4. A proximity sensor according to claim 1, wherein the controller transfers charge from the capacitance CE1/2 to the reference capacitor for a variable number of periods for each charge and discharge cycle of the reference capacitor.

Correct set of claims. (should be used.)